

CLAIMS

What is claimed is:

1. A hydrostatic transmission, comprising:

a hydraulic pump and a hydraulic motor; and

5 a center section having a pump running surface on which the hydraulic pump rotates and a motor running surface on which the hydraulic motor rotates, the center section having porting by which the hydraulic pump and the hydraulic motor are in fluid communication;

wherein the porting terminates in a pair of equidistantly spaced, generally arcuate shaped openings on the pump running surface, the pump running surface includes a plurality of
10 generally v-shaped grooves extending from each of the ends of the generally arcuate shaped openings, and each of the grooves has an arc-length that is approximately 24.5 percent of the arc-length of the average distance between the ends of the generally arcuate shaped openings.

2. A hydrostatic transmission as set forth in Claim 1, wherein the hydraulic pump comprises a pump cylinder block having seven pump cylinder bores in which seven pump pistons are
15 carried and wherein each of the grooves has an arc length that is approximately 31 percent of the average diameter of at least one of the pump cylinder bores.

3. A hydrostatic transmission as set forth in Claim 2, wherein each of the grooves has a width adjacent to the end of the arcuate opening that is approximately 17 percent of the average diameter of at least one of the pump cylinder bores.

20 4. A hydrostatic transmission as set forth in Claim 3, wherein each of the grooves has side walls that taper inwardly and terminate at a generally arcuate shaped bottom.

5. A hydrostatic transmission as set forth in Claim 4, wherein the side walls form an arcuate angle of approximately 20 degrees.

6. A hydrostatic transmission as set forth in Claim 4, wherein the bottom has a first portion adjacent to the end of the arcuate opening that is generally parallel to the pump running surface and a second portion that is angled and which extends from the first portion to the pump running surface.
- 5 7. A hydrostatic transmission as set forth in Claim 6, wherein the second portion of the bottom has an angle of approximately 55 degrees.
8. A hydrostatic transmission as set forth in Claim 4, wherein the side walls of each of the grooves has a tapered portion along their length which tapers at an angle of approximately 14 degrees to provide the groove with the general V-shape.
- 10 9. A hydrostatic transmission as set forth in Claim 8, wherein the side walls of each of the grooves has a straight portion along their length between the tapered portion and the end of the arcuate opening.
10. A hydrostatic transmission as set forth in Claim 8, wherein an end of each of the grooves opposite the arcuate opening is generally arcuate in shape.
- 15 11. A hydrostatic transmission as set forth in Claim 2, wherein the hydraulic pump has a pitch diameter of approximately 1.52 inches.
12. A hydrostatic transmission as set forth in Claim 11, wherein each of the pump pistons has a nose portion having a radius of approximately 0.82 inches and an external diameter of approximately 0.53 inches.
- 20 13. A hydrostatic transmission, comprising:
a hydraulic pump and a hydraulic motor;
a center section having a pump running surface on which the hydraulic pump rotates and a motor running surface on which hydraulic motor rotates, the center section having porting by

which the hydraulic pump and the hydraulic motor are in fluid communication wherein the porting terminates in a pair of equidistantly spaced, generally arcuate shaped openings and the pump running surface includes a plurality of generally v-shaped grooves extending from each of the ends of the generally arcuate shaped openings; and

5 wherein the hydraulic pump has a pitch diameter of approximately 1.52 inches and comprises seven pistons wherein each piston has a nose portion having a radius of approximately 0.82 inches and an external diameter of approximately 0.53 inches.

14. A hydrostatic transmission, comprising:

 a center section containing hydraulic porting;

10 a pump running surface formed on the center section;

 a motor running surface formed on the center section perpendicular to the pump running surface; and

 a pump cylinder block containing seven pistons rotatably mounted on the pump running surface.

15 15. The hydrostatic transmission of claim 14, wherein full displacement of the hydraulic pump is approximately 10 cubic centimeters per revolution.

16. The hydrostatic transmission of claim 14, wherein the pitch diameter of the pistons mounted within the pump cylinder block is approximately 1.52 inches.

17. The hydrostatic transmission of claim 14, wherein the diameter of each piston is
20 approximately 0.53 inches.

18. The hydrostatic transmission of claim 14, wherein the full displacement of the hydraulic pump is approximately 10 cubic centimeters per revolution with a piston diameter of approximately 0.53 inches.

19. The hydrostatic transmission of claim 14, further comprising gearing.
20. The hydrostatic transmission of claim 19, wherein the gearing drives at least one axle shaft.